1. Geographic Information System (GIS)

GIS is the most popular GIS tool with an impressive trajectory and a vibrant community. It also even has a particular ecosystem of complements called “plugins”. QGIS is a completely open source alternative that reduces the cost barriers since it does not need a paid license and can be executed in any operative system.

1. SAGA GIS

SAGA GIS is a GIS platform oriented to spatial analysis. SAGA GIS is a simple but powerful tool, with a big library focused on spatial analysis and characterization of basins. The interpolation options in SAGA GIS are better implemented than in other free and commercial software.

1. HEC-HMS

The Hydrologic Modeling System (HEC-HMS) is designed to simulate the hydrologic processes in basins. The software includes traditional procedures of hydrologic analysis, such as infiltration events, unit hydrograms and routing. HEC-HMS also includes modules for evapotranspiration, snow melting and calculus of soil humidity.

1. PRMS

The modeling code PRMS (Precipitation Runoff Modeling System) is a modular system of spatially distributed parameters, which represent the physical processes of a basin. It was developed by the United States Geological Survey (USGS) to evaluate the effects of several combinations of geomorphology, type of soil, soil use, vegetation and climatic parameters in the hydrological response of a basin.

1. HEC-RAS

The numerical model HEC-RAS is developed by the U.S. Army Corps of Engineers. This model uses the gradient and topography to evaluate the flow depth, velocities and flooded zones. It is also useful to calculate sediment transport and water temperature.